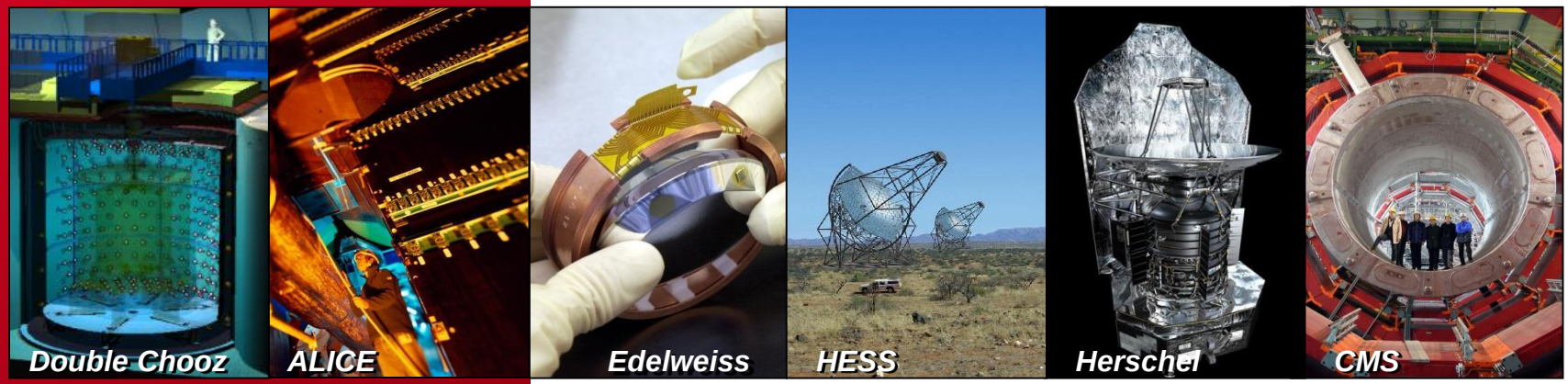
DE LA RECHERCHE À L'INDUSTRIE

CEA Saclay
Megacam
20 years

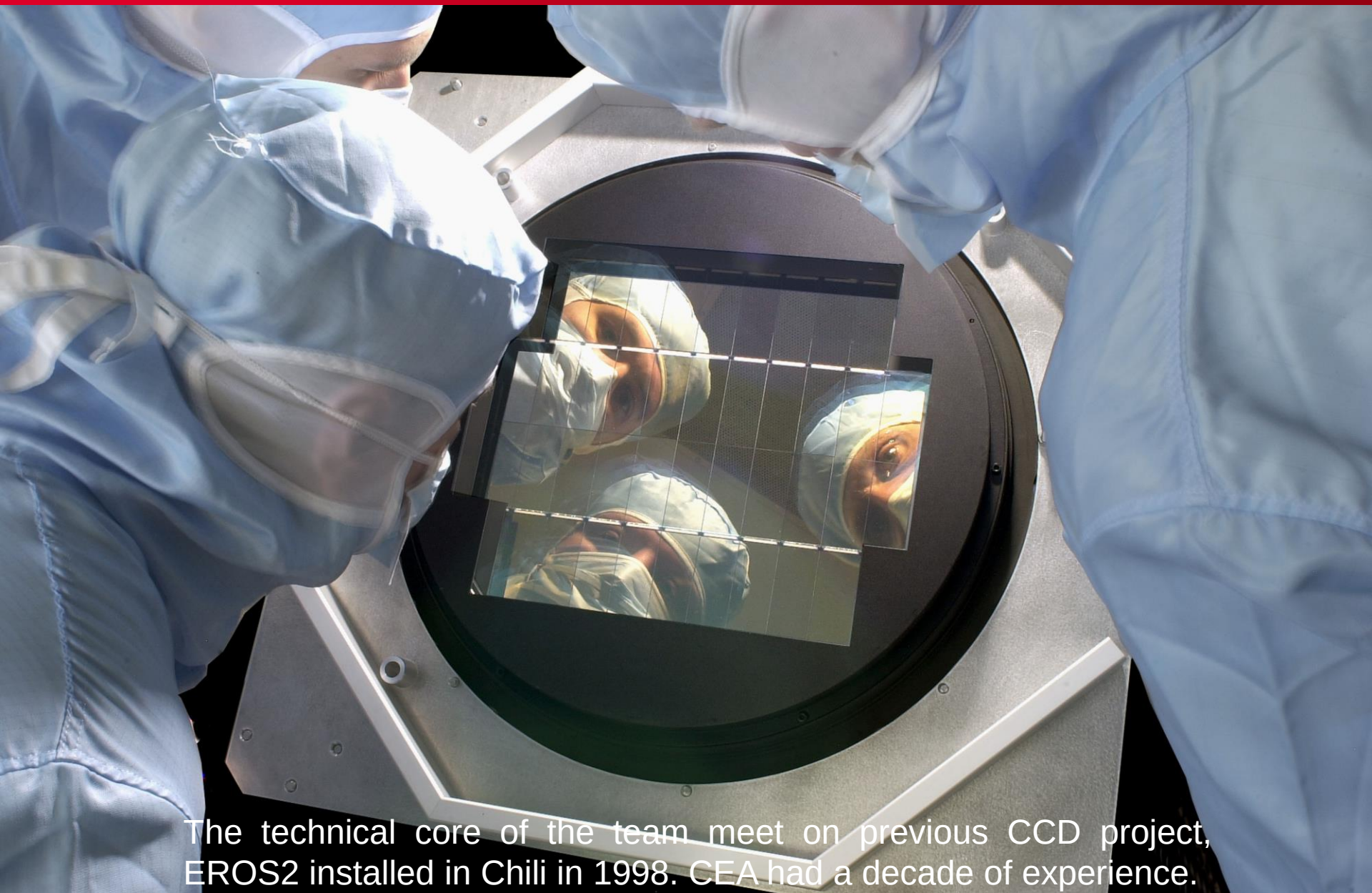


Déchiffrer les rayons de l'Univers

Stephan Aune (saune@cea.fr)

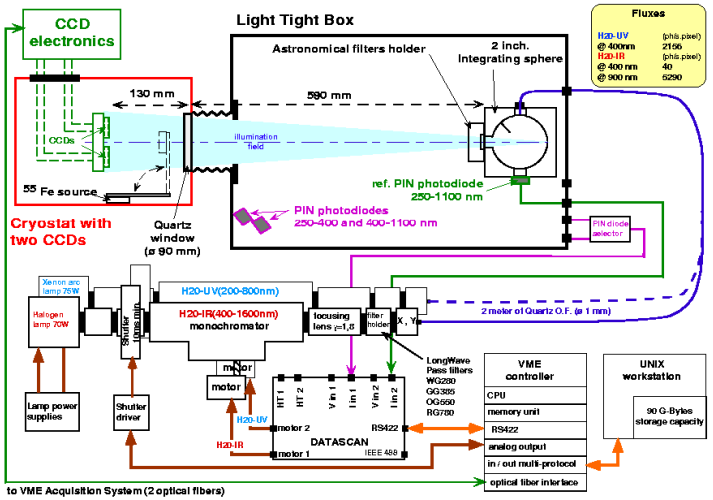
10/01/2023

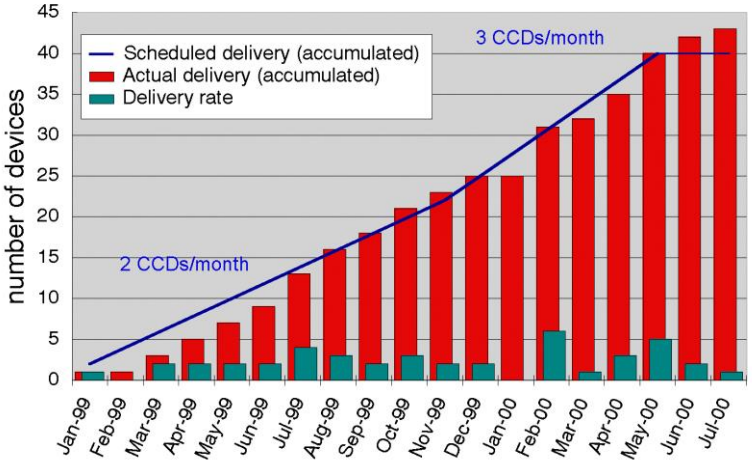
MEGACAM, A TEAM.

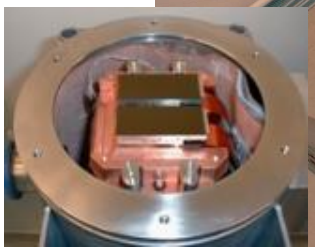


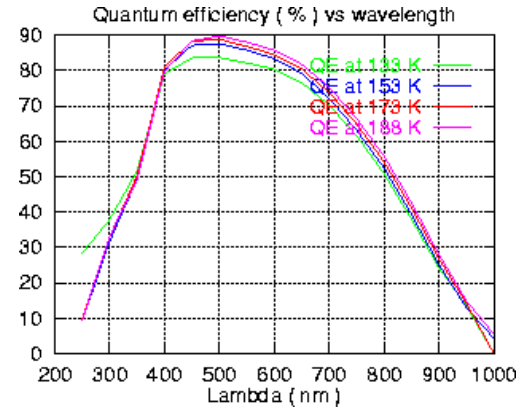
The technical core of the team meet on previous CCD project, EROS2 installed in Chili in 1998. CEA had a decade of experience.

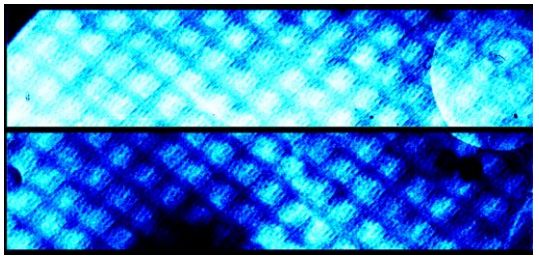
A TEST BENCH FOR 40 CCD







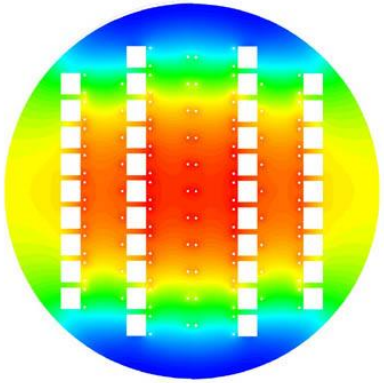




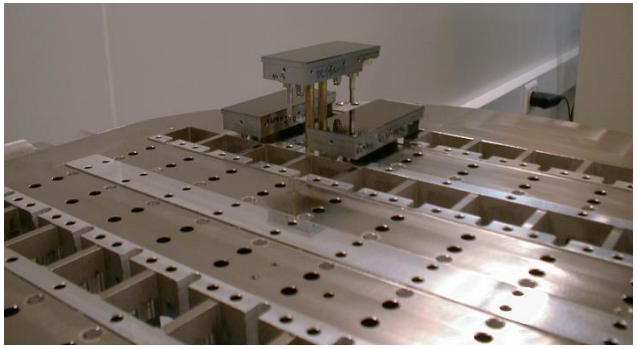
Test bench, delivery rate and results

A COLD PLATE TO HOLD THEM

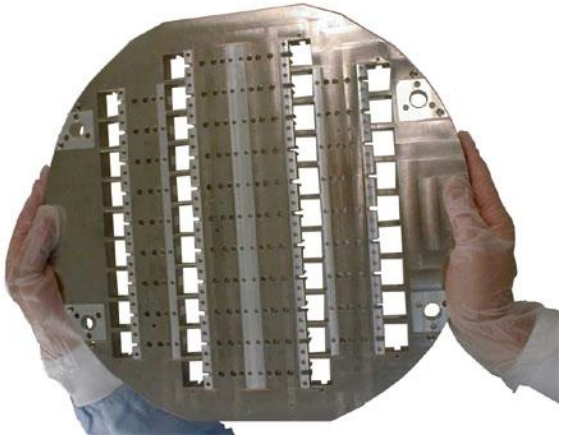
An Aluminum cold plate to populate CCD !



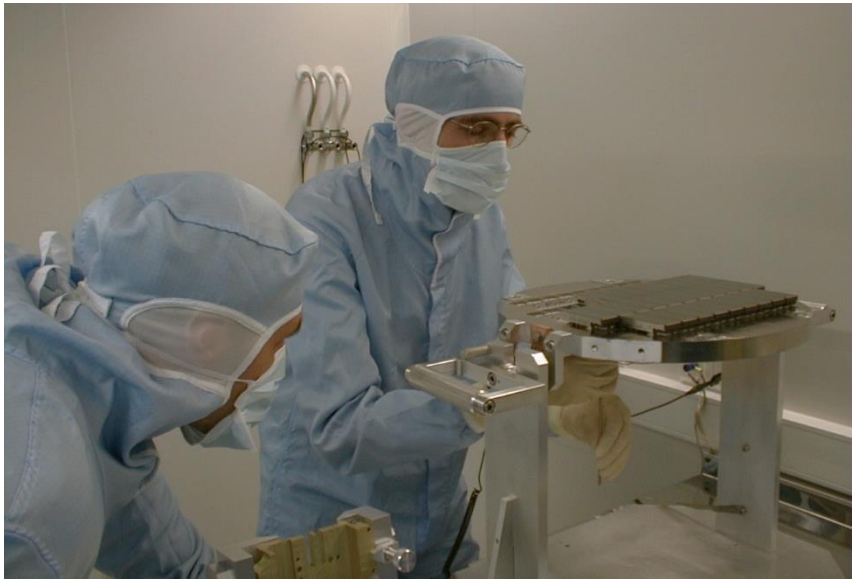
Cold plate simulation



Let's put them alright

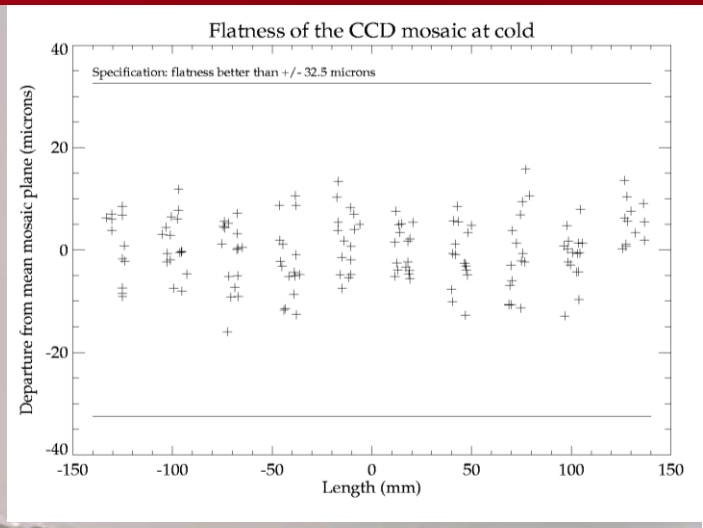


Cold plate realization



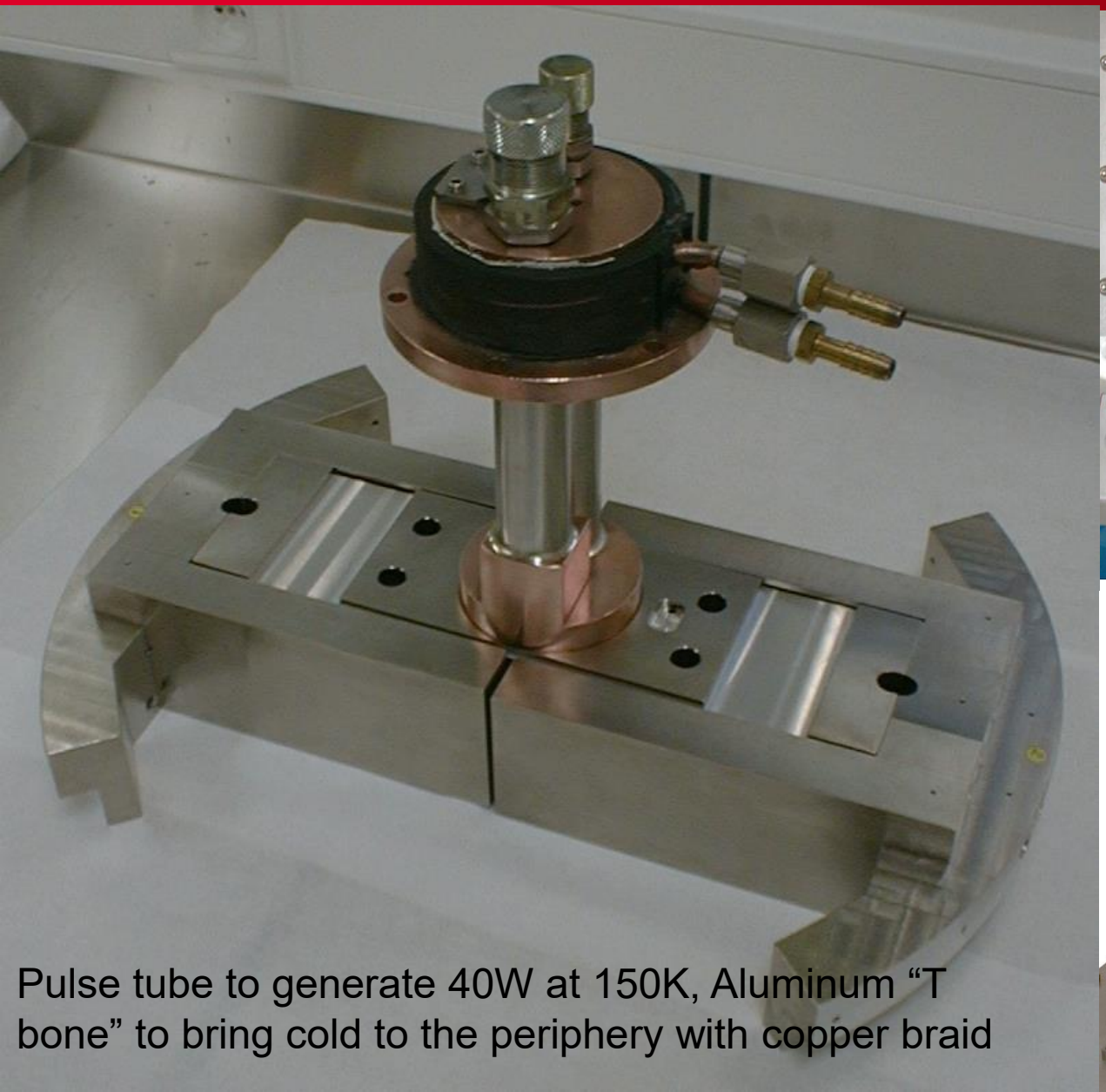
3 guys to populate:
one giving order, one working, one checking

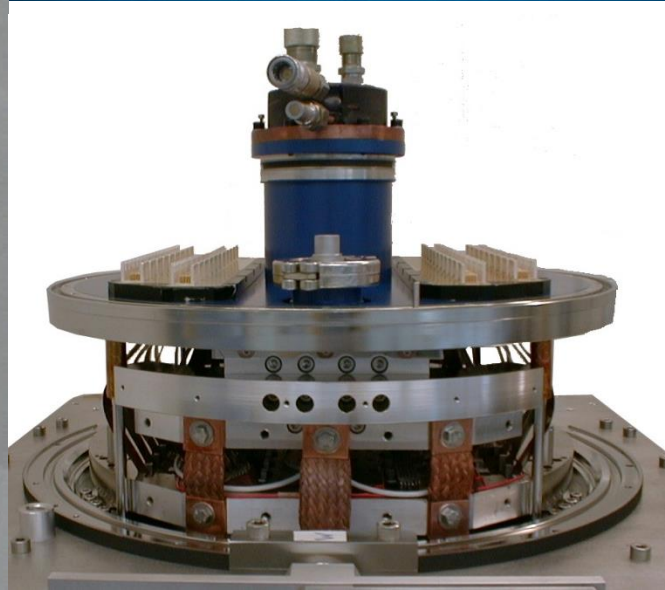
COLD PLATE #2



The flatness of the CCD mosaic is ± 16 µm (at 153 K)

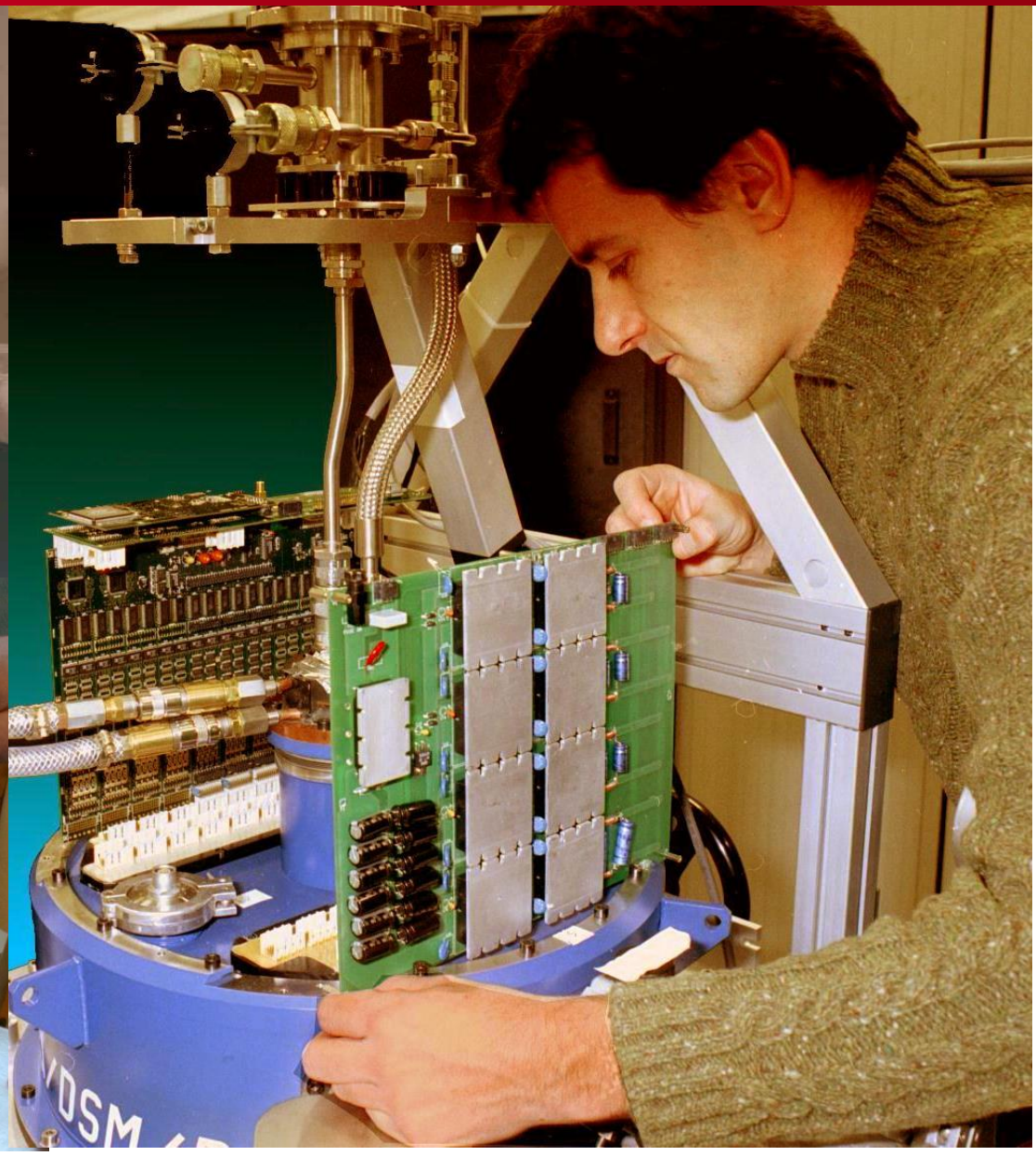
PULSE TUBE AND "T BONE"



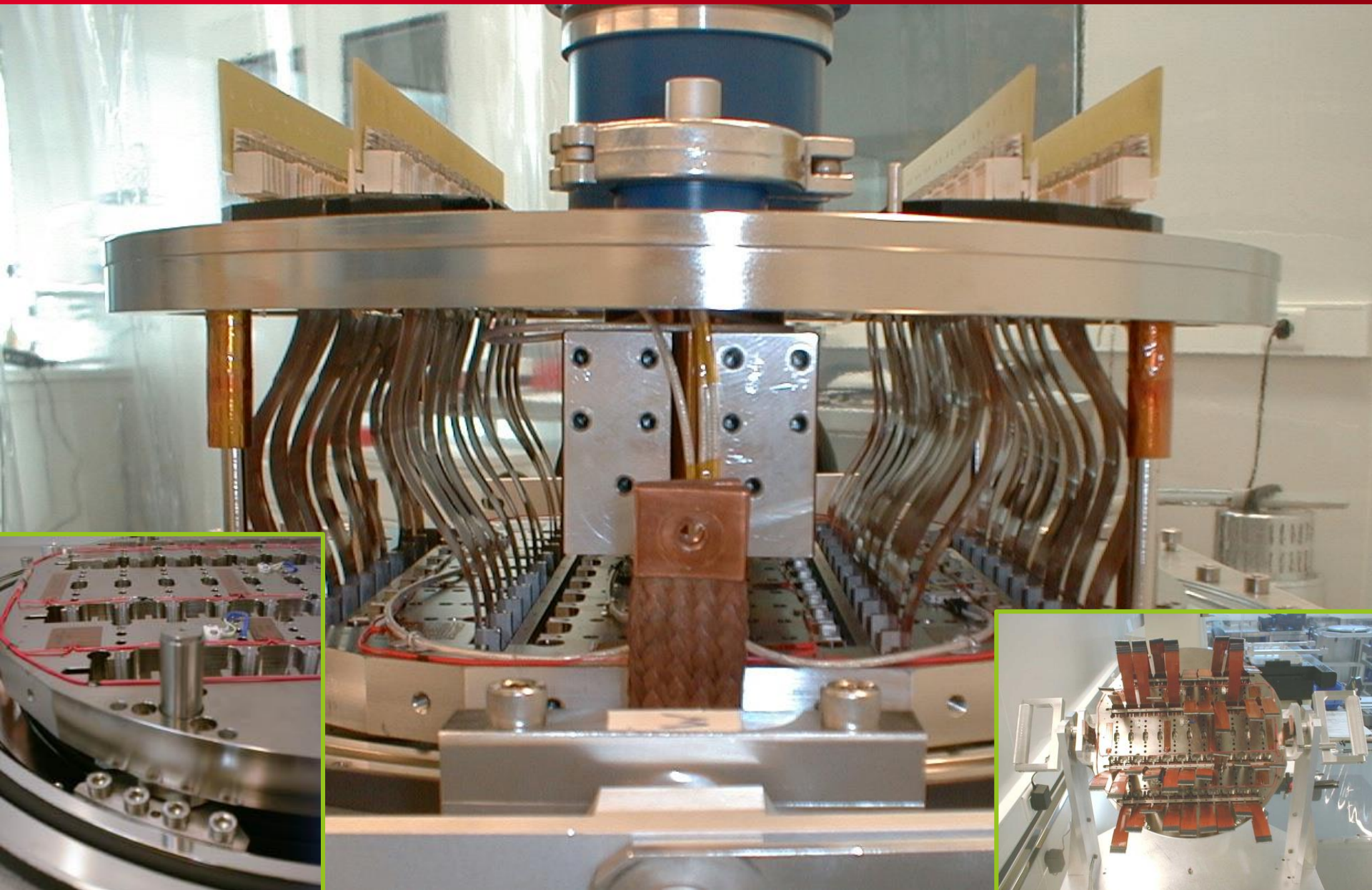


Pulse tube to generate 40W at 150K, Aluminum "T bone" to bring cold to the periphery with copper braid

HERMETIC TAPE = READ OUT BOARD FACE TO CCD

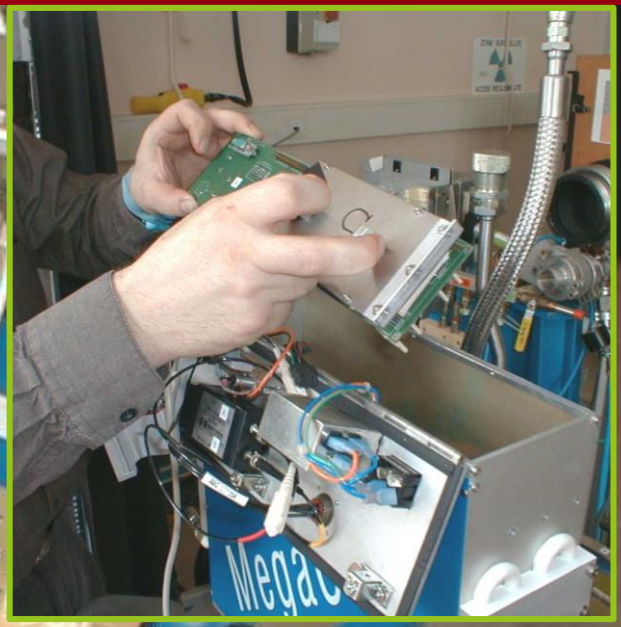


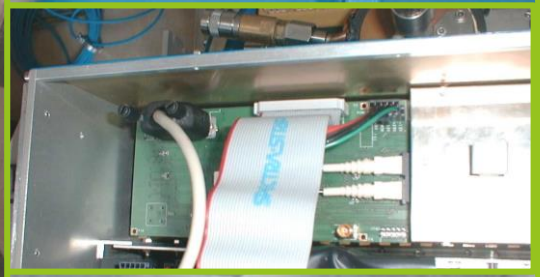
COLD PLATE ATTACHMENT & CDD CONNECTION



CRYOSTAT CLOSING

HOMEMADE DAQ ON CRYOSTAT

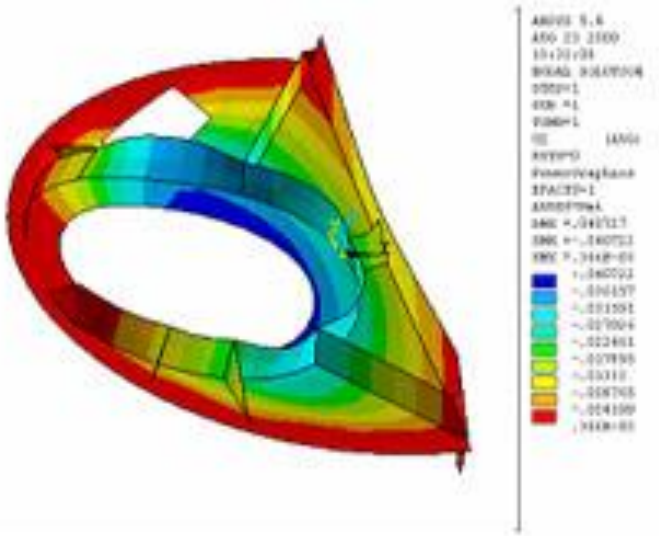




WE NEED A STRUCTURE FOR THE CAMERA

THE CAMEMBERT

A “camembert” box to mount the cryostat and to fit the shutter and filter systems.

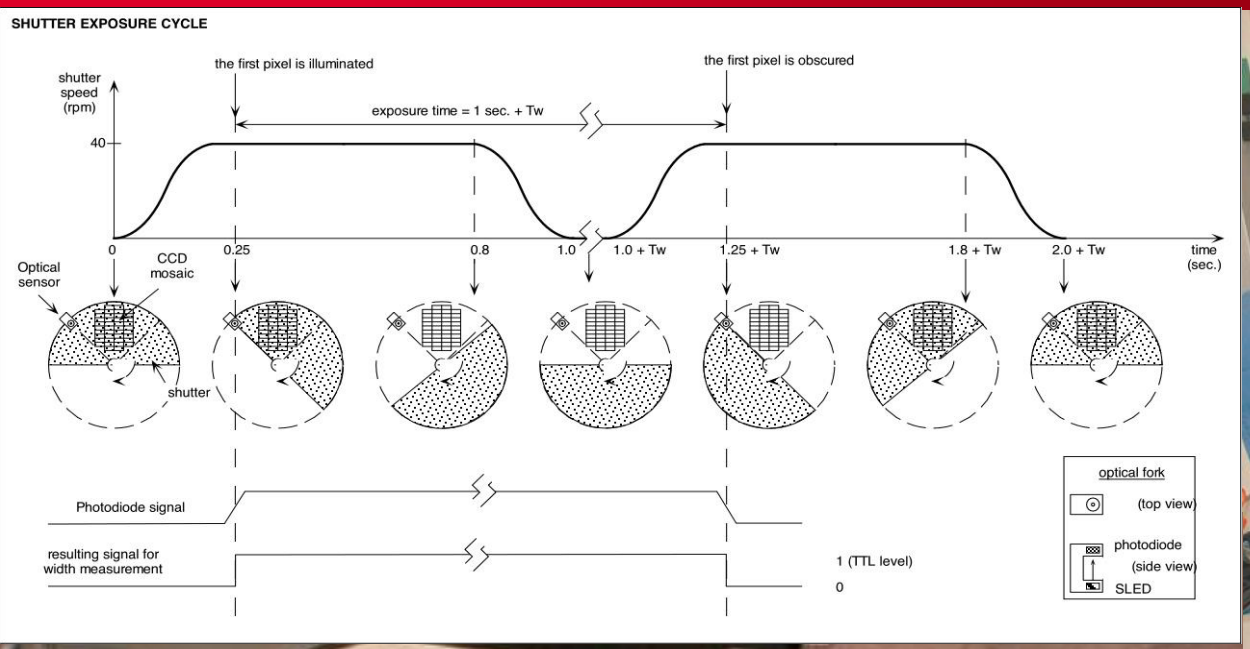


Goal: focal plane in 15 µm max deformation with load, at various angles

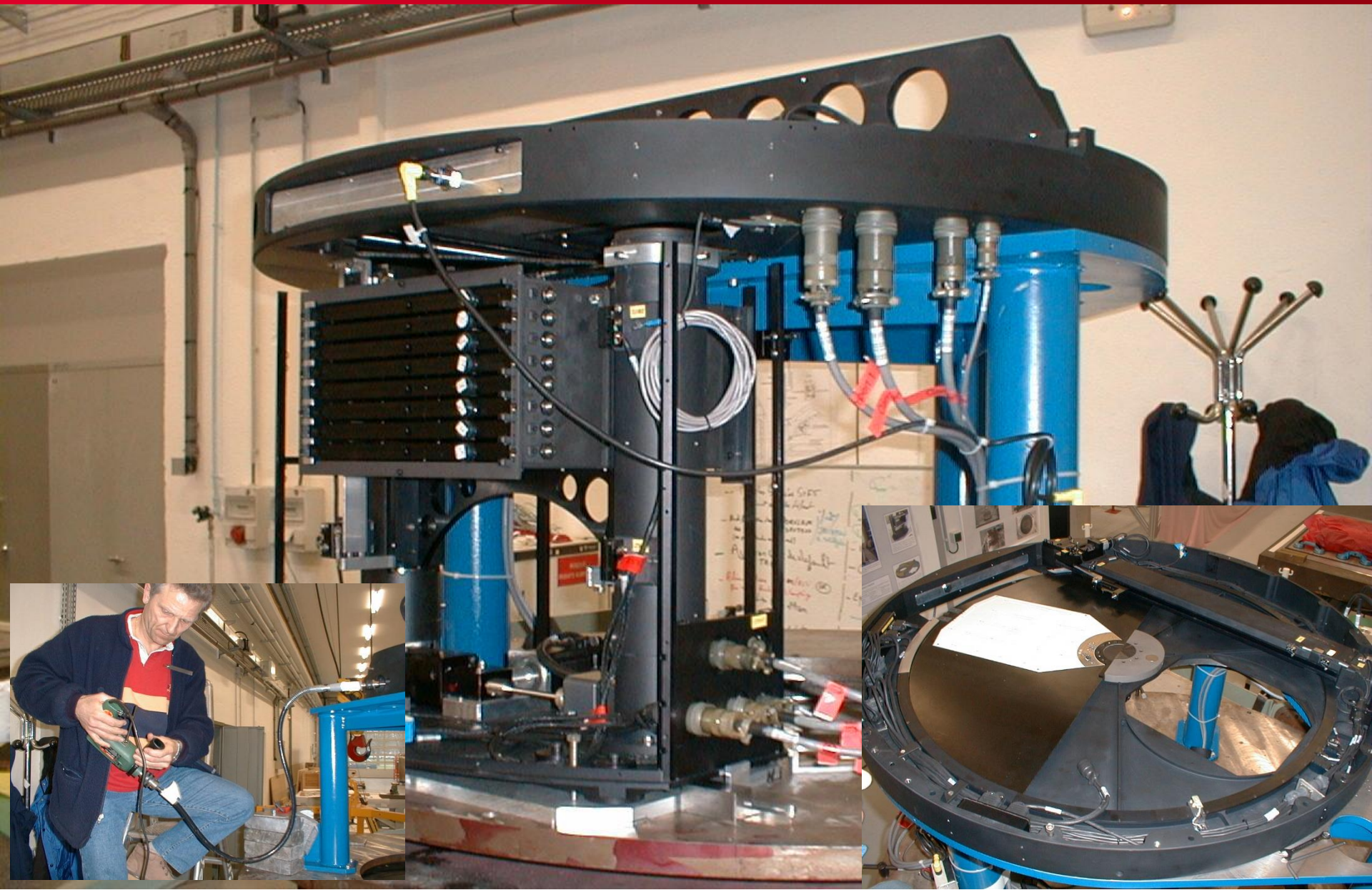
CRYOSTAT ON CAMEMBERT WITH FILTER & SHUTTER

Almost ready to swing

SHUTTER SYSTEM



FILTER SYSTEM



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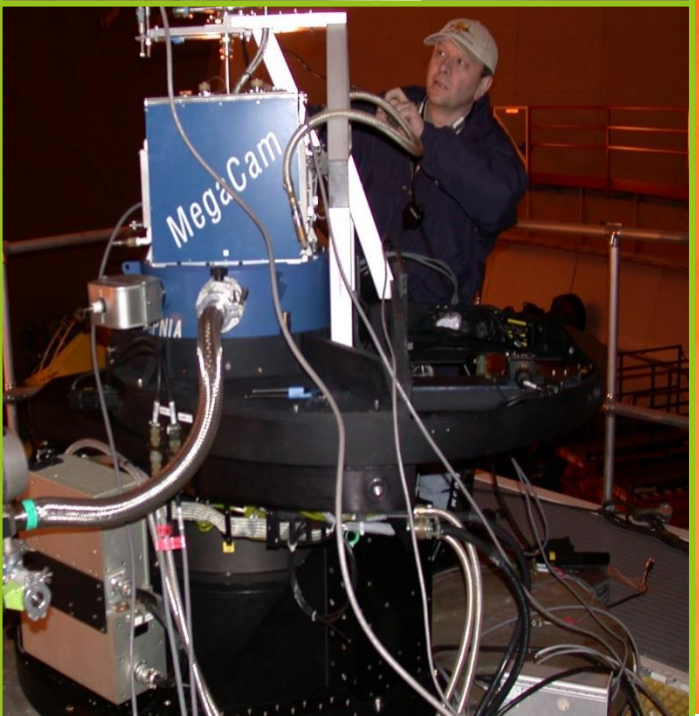
MEGACAM UP TO THE SUMMIT



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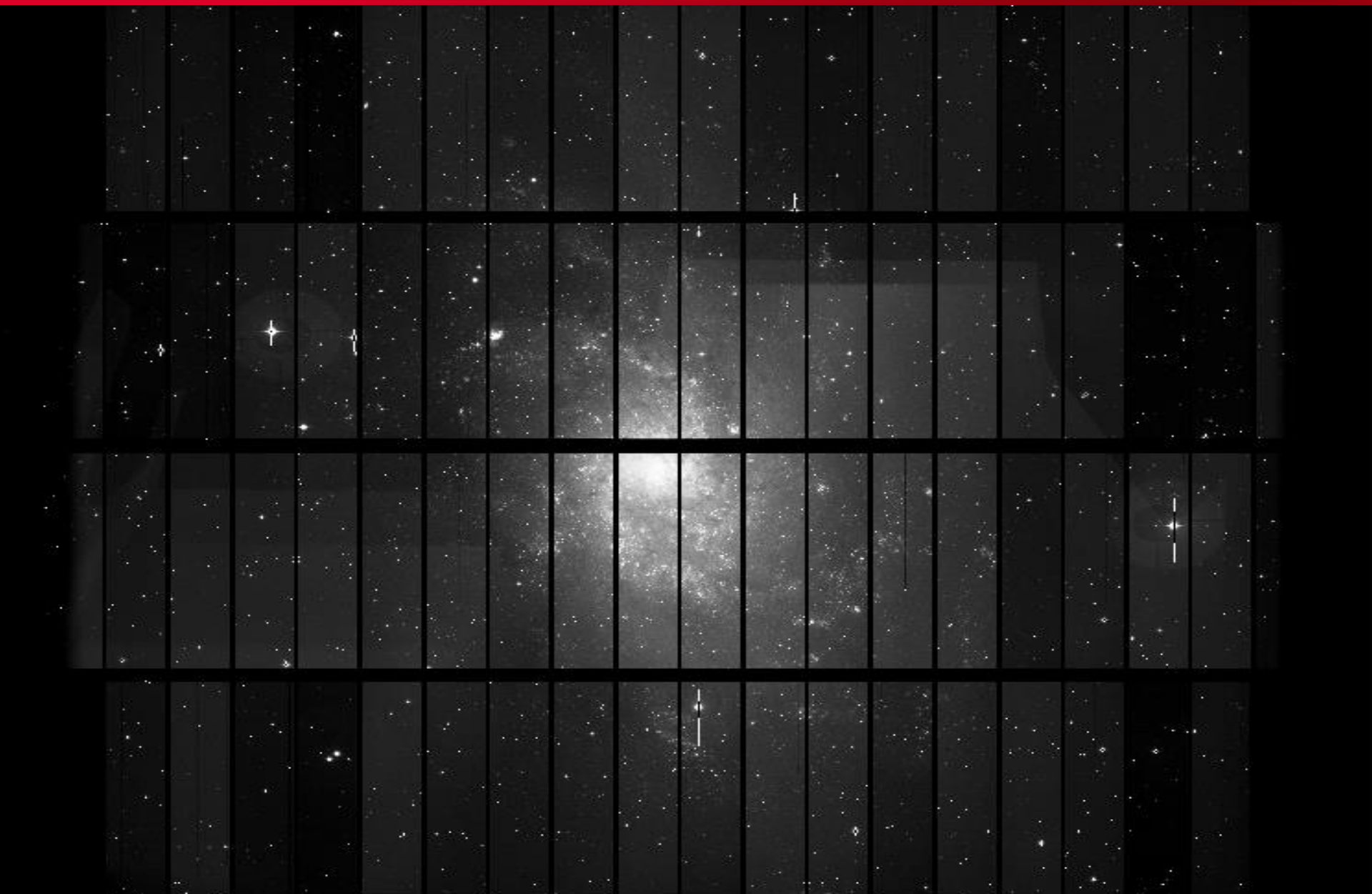
FIRST LIGHT !



SOME OF THE TEAM IN CFHT DOME

MEGACAM A TEAM BUILDING SUCCESS